Cumberland River Coal Company

Modification to KPDES Individual Permit KY0003727 adding 867-5291, Pond #3, shared with 867-0382

HQAA Application Attachments

Attachment II.1.A:

Existing treatment facility, Pond #3 on 867-0382, is being proposed as the discharge location for 867-5291. A WWTP exists at the Arlie Boggs Elementary School, but was eliminated due to the cost prohibitive distance from the proposed discharge, over 4 miles from Pond #3. Another factor in deciding to eliminate this existing WWTP is that it is package WWTP which is not designed to treat sediment laden surface runoff, only sanitary sewer and only for the school. The cost to pump surface runoff to this existing WWTP is estimated to be $125/ft. including pumping stations. Given a distance of over 21,000 feet from Pond #3, the cost would be estimated at over $2.6 million. No additional costs are anticipated for pond construction since Pond #3 currently exists. Annual maintenance costs are estimated to be $12,000.00 for sediment cleanout and disposal. Hauling the discharge to an existing WWTP was also considered. Give the amount of discharge during peak flow exceeding 760 million gallons per day, the amount of truck haulage necessary would far exceed the traffic capacity of KY 806 and create a public health and safety hazard by increasing the number of traffic fatalities in the area.

Attachment II.2.A:

Other discharge locations such as adjacent watersheds of Colliers Creek to the west, Trace Fork to the east, Callahan Creek to the southeast and Mud Lick to the southwest were evaluated. Colliers Creek was eliminated since it is classified as a Special Use Water. Callahan Creek and Mud Lick Creek were eliminated due to both watersheds being in another state, no qualitative benefit and involve pumping of runoff. Trace Fork was eliminated due to no qualitative benefit and involves pumping of runoff. Pond #3 on 867-0382, which is an existing discharge location, is within the drainage area of the mine site disturbance of 867-5291, and is the most cost effective treatment and thus was chosen as the most practicable alternative.

Attachment II.3.A

Cumberland River Coal Company reuses approximately 20k gallons of disturbed surface water runoff from ponds daily for fugitive dust control and underground dust suppression. With a combined peak discharge during a 25 year/24 hour storm of 1176.62 cubic feet per second, which equates to 760 million gallons per day, the amount of peak discharge far exceeds the amount of re-use, therefore, the need for the discharge is evident.

Attachment II.4.A:

Alternative processes and treatment options considered include clarifiers/filters, anoxic limestone drains (ALD), successive alkalinity-producing systems (SAP), limestone sand

dosing (LSD), limestone channels (LC), limestone diversion wells (LDW), package treatment plant and constructed wetlands. Clarifiers and filters were eliminated due to construction, operations and maintenance costs, estimated to be $1 to $1.5 million for construction and $0.25 to $0.5 million per year for operations and maintenance, far exceeding pond maintenance costs at $12,000.00. Also, neither of these processes performs the flood prevention function of the pond. ALDs, SAPs, limestone sand dosing, limestone channels, limestone diversion wells are designed for Acid Mine Drainage treatment only, which this site does not exhibit and do not perform the functions of the drainage ponds, which are sediment retention and flood prevention. Also, the cost of construction, estimated to be $250,000 each and maintenance costs of $100,000 per year, far exceed the cost of construction and maintenance of pond. A small package treatment plant was considered, but at an estimated cost of construction of approximately $2 million with operations and maintenance costs of $0.5 million to $0.75 million, and not designed for flood control, was eliminated due to excessive cost. Constructed wetlands were considered, but eliminated due to topography and inability to perform the functions of the drainage ponds. The cost to construct wetlands would exceed $0.5 million and operations and maintenance costs are estimated to be $100,000 to $200,000 per year, exceeding the cost of pond maintenance, which is estimated at $12,000.00 annually. A summary of each alternative process is included in Table 1 below.

Table 1- Summary of Alternative Processes and Treatment Options

Process/Option	Provides Sediment Removal	Provides Flood Control	Site Limitations	Cost Estimate	Ann. O & M Cost
Clarifiers/Filters	Pass	Fail	Pass	$1m-$1.5m	$250k-$500k
ALDs, SAPs, LSDs, LCs, LDWs	Fail	Fail	Fail	$250k	$100k
Package Treatment	Pass	Fail	Pass	$2m	$500k-$750k
Constructed Wetland	Fail	Pass	Fail	$500k	$100k-$200k
Sediment Pond #3	Pass	Pass	Pass	$0 (Existing)	$12k

In conclusion, existing sediment pond #3 meets all of the criteria for treatment for the anticipated runoff from this site and is the most cost effective treatment method and therefore was chosen as the preferred alternative.

Attachment II.5.A:

Both on-site disposal into the soil and subsurface disposal into subsurface geologic formations and abandoned underground mines were evaluated. Soil information from the USDA was evaluated to determine if any soils in the area were suitable for waste water disposal in accordance with Kentucky Health Department standards. No soils in the area were suitable for waste water disposal. The Whitesburg, USGS Quadrangle was investigated for potential geologic formations suitable for subsurface injection. No formations with suitable porosity and permeability were indicated. Also, the fresh water zone is approximately 800 feet deep in valley floor areas with most residents in the area

utilizing the stress-relief fracture aquifer system. Injection of waste water into this zone could adversely impact the health of local residents and may not be in accordance with EPA injection well regulations.

Attachment II.6.A:

Other alternatives to lowering water quality were evaluated and included a no-action alternative. When evaluating the alternatives considered above in sections 1-5, versus the projected amount of lowering in water quality, no other cost effective alternative could be found to construction of ponds and acceptance of the proposed water quality limits. The no action alternative was considered and given the impacts to the local economy of Letcher County, loss of 55 local jobs and approximately $500,000 in annual severance taxes returned to Letcher County.

Attachment III.1.A

Positive and beneficial effects of this facility on the existing environment and public health include:

A. An increase in employment in Letcher County, Kentucky.
B. An increase in tax revenues.
C. Reclamation of previous disturbances. The proposed project area has numerous previous disturbances including pre-law mining on the Morris bench, underground mine discharges in the Morris seam, extensive logging, oil and gas exploration, utility line construction, existing roads estimated to be over 80 acres. Runoff from this existing disturbances is entering the receiving streams unabated, unregulated and is not being monitored. This project will treat surface runoff from all of these existing disturbances and the post mining land use will result in a decrease in uncontrolled surface runoff and an increase in wildlife habitat.

Attachment III.2.A

Approximately 55 people will be employed by this project. Approximately 60% are residents of Kentucky. U.S. Bureau of Labor statistics indicate that Letcher County, Kentucky had an unemployment rate of 6.6 percent in 2004 compared to 5.3 percent for the Commonwealth of Kentucky.

Attachment III.3.A

Since the current DMRE application pending for this project is Amendment #3 for additional underground area to an existing surface mine, the 55 employees will be continued employment. Non-issuance of this KPDES permit will result in the layoff of these employees.

Attachment III.4.A

The tax rate for coal companies is 4.5 percent and it is estimated that this project area will generate approximately $10 million in severance taxes and a total of $25 million for the Commonwealth of Kentucky over the life of the mine. The post-mining land use will also increase the property values by improving accessibility and usable land after mining. Indirect employment due to related goods and services is estimated to be 138.

Attachment III.5.A

Continued operation of this mine will allow local residents to remain employed in their home county, thus maintaining their cultural heritage and reduce travel costs. Increases and continuation of community services will also be a benefit of the project due to increases and continuation of severance tax payments, employment of local citizens of Letcher County.

Attachment III.11.A

The 193 households impacted are both direct and indirect. The economic impacts for this applicant (CRCC) are in excess of $20 million in payroll, of which the directly employed 55 households will be included. Social benefits include local residents being able to stay in the home community to earn a living thus preserving their culture and heritage. The unemployment rate for Letcher County in 2004 was 6.6 percent compared to 5.3 for Kentucky and 5.5 for the United States. Therefore, continued employment of residents of Letcher County is vital to the economic and social structure of this small county. The population of Letcher County during the 2000 census was 25,277, compared to 27,000 in 1990 and 30,687 in 1980, indicating a downward trend in population and employment.

Attachment III.13.A

Approximately 80 acres within the watershed of Pond #3 being proposed were previously disturbed by pre-law mining on the Morris coal seam. The surface runoff from these 80 acres of un-reclaimed mining areas was discharging into the receiving streams untreated and unmonitored. As the result of this project all of the runoff from the 80 acres will be treated and monitoring. Other disturbances that will be remediated include oil and gas exploration, existing road and logging disturbances.

Attachment III.14.A

Pond #3 treats discharge from approximately 80 acres of previously disturbed, pre-law mining areas located on the Morris bench. These disturbances were mined pre-law with little to no reclamation. Natural vegetation has partially reclaimed these areas. Existing oil and gas exploration pipeline construction running from Franks Creek into Colliers Creek has created erosion which will also be treated by Pond #3. Existing logging operations within the mining area above the Morris bench have also created erosion which will be eliminated by mining and reclamation.

Attachment III.15.A

The project area will generate approximately $10 million in severance taxes and total revenue of $25 million for the Commonwealth of Kentucky over the life of the project. Increases in production levels such as proposed by this project will create more jobs. Production levels in small eastern Kentucky counties like Letcher County are directly related to employment rates and economic prosperity of the local governments. Production in Letcher County doubled from 1980 to 1990, 5 million to 10 million. The

median income in Letcher County in 2000 was $21,110 compared to an average income of $39,067.60 for coal miners in Kentucky.

Attachment III.16.A

Operational efficiency increases will have a positive effect on the socioeconomic conditions of the area by:

- Remediating existing sources of pollution,
- Implementing best management practices,
- Minimizing disturbances during mining phases,
- Adhering to the contemporaneous reclamation requirements,
- Providing a higher and better post-mining land use,
- Increase wildlife habitat,
- Mitigating existing poor quality streams,
- Increasing revenues for the Commonwealth of Kentucky,
- Increasing revenues for Letcher County,
- Decreasing unemployment in Letcher County,
- Reduce the loss of population and maintaining of cultural heritage in Letcher County,
- Providing higher standard of living in Letcher County through better ambulance, police, fire protection, education, transportation, utilities and increased wages.
- Providing infrastructure for Letcher County and surrounding area,
- Increasing domestic energy production for the Commonwealth of Kentucky and the US,
- Decreasing utility costs and
- Increasing consumer confidence in Letcher County.